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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,853	11/18/2003	Hua Huang	ARC-P130	9482

32566 7590 09/26/2006

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EXAMINER

LEROUX, ETIENNE PIERRE

ART UNIT PAPER NUMBER

2161

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/717,853

Applicant(s)

HUANG, HUA

Examiner

Etienne P. LeRoux

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 August 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,6,8 and 16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,2,6,8 and 16 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 18 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

*Claim Status*

Claims 1, 2, 6, 8 and 16 are pending; claims 3-5, 7 and 9-15 have been canceled. Claims 1, 2, 6, 8 and 16 are rejected as detailed below.

*Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1, 2, 6, 8 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility.

The claimed data structure is not drawn to a practical application which has a useful result because the data structure is not interrelated with software components and hardware components of a computer system to produce an output and thus no (emphasis added) result is obtained and thus the consideration of usefulness is moot. Even if the data structure were embodied in a computer readable medium no result would be obtained because the purpose of the data structure cannot be ascertained. The lack of functionality in order to produce a useful result implies that the claimed static data structure does not represent a practical application possessing utility and thus the claimed invention is an abstract idea which is nonstatutory.

*Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 recites "a first pointer always pointing to a child node that was last traversed in data access." The above limitation lacks support in the specification because the specification does not support the claim language "last traversed in data access." Furthermore, the specification does not describe what is meant by "always pointing to a child node that was last traversed." This is particularly difficult to ascertain because Figure 2 shows TWO pCursor pointers.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites "retrieving another data from the data store." The metes and bounds of the present invention cannot be determined because it is unclear what comprises "another data."

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 6, 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat No 6,185,569 issued to East et al (hereafter East) in view of Pub No US 2001/0014097 issued to Beck et al (hereafter Beck), as best examiner is able to ascertain.

Claims 1 and 6:

East discloses:

the children node are linked in an order where each child node comprises at least one of a second pointer pointing to a next child node in the order and a third pointer pointing to a previous child node in the order [real-time record of the node label, col 4, lines 32-40, Fig 2, doubly-linked pointers, 250-255, col 2, lines 45-50, Fig 2, right node 230]

East discloses the elements of the claimed invention as noted above but does not disclose a first pointer always pointing to a child node that was last traversed in data access. Beck discloses a first pointer always pointing to a child node that was last traversed in data access [paragraph 46] It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify East to include a first pointer always pointing to a child node that

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was last traversed in data access as taught by Beck for the purpose of complying with a round-robin access routine [paragraph 46].

Claims 2 and 8:

The combination of East and Buck discloses the elements of claim 1 as noted above and furthermore, East discloses wherein the parent node further comprises a fourth pointer to a first child node in the order and a fifth pointer to a last child node in the order [Fig 2]

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of East and Beck and further in view of Pub No US 2004/0083209 issued to Shin (hereafter Shin), as best examiner is able to ascertain.

Claim 16:

The combination of East and Beck discloses the elements of claim 6 as noted above but does not disclose retrieving another data from the data structure, comprising determining which one of the first, second and the third pointers has the shortest path to said another data, following said one of the first, the second and the third pointers to the children nodes; and traversing at least another one of the children nodes to retrieve said another data and for the parent node, updating the third pointer to point to the last traversed child node in said retrieving another node. Shin discloses retrieving another data from the data structure, comprising determining which one of the first, second and the third pointers has the shortest path to said another data, following said one of the first, the second and the third pointers to the children nodes; and traversing at least

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another one of the children nodes to retrieve said another data and for the parent node, updating the third pointer to point to the last traversed child node in said retrieving another node [paragraph 38]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above combination of references to include retrieving another data from the data structure, comprising determining which one of the first, second and the third pointers has the shortest path to said another data, following said one of the first, the second and the third pointers to the children nodes; and traversing at least another one of the children nodes to retrieve said another data and for the parent node, updating the third pointer to point to the last traversed child node in said retrieving another node as taught by Shin for the purpose of improving the performance of an XML query [abstract]

### *Response to Arguments*

Applicant's arguments filed 8/1/2006 have been fully considered but they are not persuasive for the following reasons.

#### **Applicant Argues:**

Applicant states in the fourth paragraph of page 5:

The examiner rejected claims 1 to 15 under 35 U.S.C. 101 because the claimed invention lacks patentable utility. Applicant has amended independent claims 1 and 6 to recite a "data structure for data storage in a machine readable medium." Applicant notes that data structures are commonly used for data storage in databases and file systems.

#### **Examiner Responds:**

Examiner is not persuaded. The claims are directed to a data structure for storing data in a machine readable medium and consequently may satisfy the utility requirement of 35 U.S.C. 101 since data storage does have some “real world” value. However, the mere fact that the claim may satisfy the utility requirement of 35 U.S.C. 101 does not mean that a useful result is achieved under the practical application requirement. The claimed invention as a whole must produce a “useful, concrete and tangible” result. Applicant claims a series of pointers, i.e., a first pointer, a second pointer and a third pointer between a parent node and a plurality of children nodes without claiming any significant functionality directly attributable to the pointers. The purpose of the pointers is difficult to ascertain from the claim limitations. The lack of a “useful, concrete and tangible result” implies that the pointers are merely an abstract idea and therefore, do not have a practical application in the real world.

Additionally, Applicant’s statement that “data structures are commonly used for data storage in databases and file systems” does not address the issue of real world value of the claimed invention because it appears Applicant is admitting that the present invention is well-known and expected in the art. Claiming that which is well-known and expected in the art is not useful and is not patentable subject matter.

Applicant's arguments with respect to claims 1, 6 and 16 have been considered but are moot in view of the new ground(s) of rejection.



### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### *Contact Information*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etienne P. LeRoux whose telephone number is (571) 272-4022. The examiner can normally be reached Monday through Friday between 8:00 am and 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on (571) 272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Etienne LeRoux

9/19/2006



Primary Examiner